## What is Claimed:

1	1.	A system for approximating flux density of light on a retina, the	
2	system comprising:		
3		a housing defining an inside and having an opening allowing light to	
4	pass to the inside of the housing;		
5		a baffle coupled to the housing, the baffle replicating the facial cutoff	
6	function for the light passing to the inside of the housing;		
7		a first detector positioned to detect the light inside the housing, the	
8	first detector producing a photopic spectral response function of the light inside the		
9	housing that	approximately replicates a spectral response of foveal cones;	
10		a second detector positioned to detect the light inside the housing, the	
11	second detec	tor producing a scotopic spectral response function of the light inside	
12	the housing t	that approximately replicates a spectral response of rods in the retina;	
13	and		
14		a processor coupled to the first and second detectors, the processor	
15	being configu	ared to calculate a flux density of the light inside the housing based on	
16	the photopic	and scotopic spectral response functions.	
1	2.	The system of claim 1, wherein the first detector includes a first filter	
2	producing th	e photopic spectral response function and the second detector includes a	
3	second filter	producing the scotopic spectral response function.	

1	3.	The system of claim 2, wherein the first detector includes a first		
2	photocell producing a first signal weighted by the photopic spectral response function			
3	and the second detector includes a second photocell producing a second signal			
4	weighted by	the scotopic spectral response function.		
1	4.	The system of claim 3, further comprising a signal transmission means		
2	for transmitting the first and second signals to the processor.			
1	5.	The system of claim 1, wherein the first detector includes a first		
2	photocell producing a first signal weighted by the photopic spectral response function			
3	and the second detector includes a second photocell producing a second signal			
4	weighted by the scotopic spectral response function.			
1	6.	A system for approximating a flux density of light on a retina, the		
2	system comprising:			
3		a housing defining an inside and having an opening allowing light to		
4	pass to the inside of the housing;			
5		a baffle coupled to the housing, the baffle replicating a retinal spatial		
6	response for	response for the light passing to the inside of the housing;		
7		a first detector positioned to detect the light inside the housing, the		
8	first detector producing a first signal approximately replicating a spectral response of			
9	cones in the i	retina to the light inside the housing;		
10	•	a second detector positioned to detect the light inside the housing, the		
11	second detec	tor producing a second signal approximately replicating a spectral		
12	response of r	ods in the retina to the light inside the housing; and		
13		a processor coupled to the first and second detectors for receiving the		
14	first and seco	nd signals, the processor being configured to calculate a flux density of		
15	the light insid	le the housing based on the first and second signals.		

- 7. The system of claim 6, further comprising a beam splitter for transmitting the light inside the housing into at least two directions.
- 1 8. The system of claim 6, further comprising a beam splitter for
  2 transmitting a first portion of the light inside the housing toward the first detector
  3 and for transmitting a second portion of the light inside the housing toward the
  4 second detector.
- 1 9. The system of claim 6, further comprising a lens coupled to the housing for focusing the light inside the housing, wherein the baffle surrounds the lens.

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- 10. The system of claim 6, wherein the first detector includes a first filter producing the photopic spectral response function and the second detector includes a second filter producing the scotopic spectral response function.
- 11. The system of claim 10, wherein the first detector includes a first photocell producing a first signal weighted by the photopic spectral response function and the second detector includes a second photocell producing a second signal weighted by to the scotopic spectral response function.
- 12. The system of claim 6, wherein the first detector includes a first photocell producing a first signal weighted by the photopic spectral response function and the second detector includes a second photocell producing a second signal weighted by to the scotopic spectral response function.
- 1 13. A method of approximating a peripheral-photopic luminance of light incident on a combination of foveal and peripheral cones of a retina, the method comprising the steps of:

4 .	prod ·	ucing a first signal weighted by a spectral response of the foveal	
5	cones to the light and proportional to a first flux density of the light received by the		
6	foveal cones;		
7	prod	ucing a second signal weighted by a spectral response of rods in	
8	the retina to the lig	tht and proportional to a second flux density of the light received	
9	by the rods; and		
10	appl	ying a function to the first and second signals to approximate the	
11	peripheral-photopic response.		
1	14. The	method of claim 13, wherein the function comprises the steps of:	
2	calcu	lating a first luminance on the foveal cones based upon the first	
3	retinal flux;		
4	calcu	lating a second luminance on the rods based upon the second	
5	retinal flux; and		
6	calcı	llating the peripheral-photopic luminance based upon the first and	
7	second luminances.		
1	15. A me	ethod of approximating a mesopic retinal flux density of light	
2 .	incident on a comb	ination of cones and rods of a retina, the method comprising the	
3	steps of:		
4	prod	ucing a first signal weighted by a spectral response of the cones to	
5	the light and propo	rtional to a first flux density of the light received by the cones;	
6	prod	ucing a second signal weighted by a spectral response of the rods	
7	to the light and pro	portional to a second flux density of the light received by the	
8	rods; and		
9	appl	ying an algorithm to the first and second signals to determine the	
10	mesonic retinal flu	, donaity	

1	16.	The method of claim 15, wherein the function includes the steps of:	
2		calculating a first photopic luminance based upon the first retinal flux;	
3		calculating a second scotopic luminance based upon the second retina	
4	flux;		
5		calculating a third peripheral-photopic luminance based upon the first	
6	and second le	uminances; and	
7		calculating the mesopic flux density based upon the third peripheral-	
8	photopic luminance.		
1	17.	A machine-readable storage medium containing a set of instructions	
2	for a general	purpose computer, the set of instructions implementing the steps of:	
3		producing a first signal weighted by a spectral response of the foveal	
4	cones to the light and proportional to a first flux density of the light received by the		
5	foveal cones;		
6		producing a second signal weighted by a spectral response of rods in	
. 7	the retina to	the light and proportional to a second flux density of the light received	
8	by the rods; and		
9		applying a function to the first and second signals to approximate the	
10	peripheral-ph	notopic response.	
1	18.	A machine-readable storage medium containing a set of instructions	
2	for a general	purpose computer, the set of instructions implementing the steps of:	
3		producing a first signal weighted by a spectral response of the cones to	
4	the light and	proportional to a first flux density of the light received by the cones;	
5		producing a second signal weighted by a spectral response of the rods	
6	to the light a	nd proportional to a second flux density of the light received by the	
7	rods; and		

- 8 applying an algorithm to the first and second signals to determine the
- 9 mesopic retinal flux density.